

What is claimed is:

- 1 1. A method comprising:
2 receiving a signal including at least one known symbol;
3 estimating a DC level of the signal;
4 performing equalization on the signal to form at least one estimated symbol;
5 and
6 remodulating the at least one estimated symbol to form a second signal.
- 1 2. The method of claim 1 further comprising re-estimating the DC level by
2 comparing the signal and the second signal.
- 1 3. The method of claim 2 further comprising calculating an initial DC
2 estimation error by comparing estimates of the DC level of the signal and re-
3 estimates of the DC level.
- 1 4. The method of claim 3 further comprising:
2 weighting the at least one estimated symbol; and
3 performing channel decoding.
- 1 5. The method of claim 4 wherein weighting comprises reducing a weight
2 when the initial DC estimation error is above a threshold.
- 1 6. The method of claim 4 wherein weighting comprises increasing a weight
2 when the initial DC estimation error is below a threshold.
- 1 7. The method of claim 3 further comprising re-performing the equalization if
2 the initial DC estimation error is above a threshold.

- 1 8. The method of claim 1 wherein receiving a signal including at least one
2 known symbol comprises receiving a training sequence of symbols.
- 1 9. The method of claim 8 further comprising repeating the listed actions for a
2 plurality of slots of a global system for mobile communications (GSM) signal.
- 1 10. A method comprising:
2 receiving a signal that includes a training sequence of symbols;
3 estimating a channel parameter from the signal;
4 performing equalization to produce estimated symbols; and
5 remodulating the estimated symbols and re-estimating the channel
6 parameter.
- 1 11. The method of claim 10 wherein estimating a channel parameter comprises
2 estimating a DC level of the signal.
- 1 12. The method of claim 10 wherein estimating a channel parameter comprises
2 estimating a carrier to interference ratio.
- 1 13. The method of claim 10 wherein estimating a channel parameter comprises
2 estimating a noise spectrum.
- 1 14. The method of claim 10 further comprising calculating an initial estimation
2 error by comparing results from estimating the channel parameter and re-estimating
3 the channel parameter.
- 1 15. The method of claim 14 further comprising re-performing equalization when
2 the initial estimation error is above a threshold.

1 16. The method of claim 14 further comprising weighting the estimated symbols
2 by the initial estimation error.

1 17. The method of claim 10 wherein receiving a signal comprises receiving a
2 global system for mobile communications (GSM) signal.

1 18. An apparatus including a medium adapted to hold machine-accessible
2 instructions that when accessed result in a machine performing:
3 remodulating a training sequence of symbols from soft decisions;
4 calculating an estimation error from received signal samples and
5 remodulated signal samples; and
6 weighting the soft decisions in part by the estimation error.

1 19. The apparatus of claim 18 wherein calculating an estimation error comprises
2 comparing an estimation of a DC level of the received samples to a DC level of
3 remodulated signal samples.

1 20. The apparatus of claim 18 wherein weighting the soft decisions comprises
2 increasing a weight when the estimation error is small.

1 21. The apparatus of claim 18 wherein weighting the soft decisions comprises
2 decreasing a weight when the estimation error is large.

1 22. An apparatus comprising:
2 a parameter estimator adapted to estimate a channel parameter;
3 an equalizer coupled to the parameter estimator, the equalizer adapted to
4 equalize a channel based at least in part on an estimate of the channel parameter;
5 and
6 a processing element adapted to compare received signal samples and
7 remodulated signal samples, and to normalize soft decisions.

1 23. The apparatus of claim 22 wherein the processing element is further adapted
2 to calculate an initial estimation error from the received signal samples and the
3 remodulated signal samples.

1 24. The apparatus of claim 22 wherein the parameter estimator is adapted to
2 estimate a DC level of a signal.

1 25. The apparatus of claim 22 wherein the parameter estimator is adapted to
2 estimate a carrier interference ratio of the signal.

1 26. An electronic system comprising:
2 an omni-directional antenna;
3 a parameter estimator to estimate a channel parameter from a signal received
4 from the omni-directional antenna;
5 an equalizer coupled to the parameter estimator, the equalizer to equalize a
6 channel based at least in part on an estimate of the channel parameter; and
7 a processing element to compare received signal samples and remodulated
8 signal samples, and to normalize soft decisions.

1 27. The electronic system of claim 26 wherein the processing element is further
2 adapted to calculate an initial estimation error from the received signal samples and
3 the remodulated signal samples.

1 28. The electronic system of claim 26 wherein the parameter estimator is
2 adapted to estimate a DC level of the signal.

1 29. The electronic system of claim 26 wherein the parameter estimator is
2 adapted to estimate a carrier interference ratio of the signal.